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EVANSIA

Volume 1 **Number 1**

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EVANSIA—AN INFORMATION BULLETIN OF THE AMERICAN BRYOLOGICAL AND LICHENOLOGICAL SOCIETY

The hopes, desires and rumors preceeding this first issue of Evansia have been considerable. Initially I had no desire or intention of being involved with the project. However, when Norton Miller telephoned and asked me to be the first editor I reluctantly agreed. I succumbed to Norton's persistent combination of nagging and flattery, in part, because I would be allowed to set the direction of the publication. With the numerous opinions as to what the publication should be, I was only willing to venture into the project with more or less complete control. I also agreed to undertake the project because an able and enthusiastic co-editor (who works on lichens) had already accepted the position, Claire Schmitt. Between Norton, Claire and me, we decided we did not want a newsletter, at least in the standard sense. We also did not wish to usurp items which we felt are more appropriate in The Bryologist, especially the Recent Literature and News and Notes sections. A primary goal, though, was to make the publication of use and interest especially to, but not restricted to, the knowledgeable amateur. Therefore, articles dealing with the techniques of bryophyte and lichen identification and biology were thought to be particularly appropriate. We would also like articles dealing with local floristics of North America. Evansia will deal strictly with North American bryology and lichenology, although some of the articles will surely be of wider interest. Since The Bryologist does not have room for articles on new county records, Evansia can now fill that gap. We also foresee Evansia as an outlet for preliminary research papers which authors would like to get feedback and reactions on before proceeding. The editors are open to (but do not promise to follow or agree with) other ideas and should be contacted by interested authors.

I would like to acknowledge Richard Zander (via Norton Miller) who suggested the title of our new publication. Certainly when considering a title for a journal dealing with such diverse organisms as bryophytes and lichens, conflicting views are bound to enter the picture. However, a man of such noteworthy stature as A. W. Evans deserves recognition, albeit posthumously. Thank you Richard.

Finally, I would like to thank the authors, present and future, who yield to the pressures I have exerted, and will continue to wield, to write articles. I encourage input from bryologists and lichenologists at all levels.

Editor
William R. Buck

EVANS - A BRYOLOGICAL/LICHENOLOGICAL INTERCONNECTION

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North American bryophytes and lichens have not been more genuinely loved nor critically examined by a single individual than by Alexander William Evans. While we each share a fondness for these separate plant groups, due perhaps to the gregarious growth of mosses, liverworts and lichens interspersed, it is rare for an individual to study each intently. Rather, one becomes regarded as a bryologist, an hepaticologist, a muscologist or a lichenologist. Evans was all of these to the highest degree. Not only did he pioneer or expand upon many of the research techniques applied to these organisms, he supplied us with many of the character states still regarded as sound taxonomic units.

Born in 1868 in Buffalo, New York, Alexander graduated from the Scientific School of Yale University in 1890. His degree studies included botany from Professor D. C. Eaton, but two years later he took his M.D. degree. Although Evans was to complete a two year internship at the New Haven Hospital in 1894, his interest in botany, and bryophytes in particular, had been deeply instilled by Eaton. This prompted him to ignore setting up practice, and instead he headed off to the University of Berlin to study under the tutorage of Professor Leopold Kny. Upon Dr. Eaton's untimely death the following year, Dr. Evans was asked to fill that botany position. At Yale he remained until the late 1920's when he enjoyed but a brief retirement. U.S. bank failures forced a return to his position. He finally retired with _emeritus_ status in 1936.

During his tenure at Yale, Dr. Evans trained but nine Ph.D. students, with only two, George E. Nichols (Ph.D., 1909) and Hempstead Castle (Ph. D., 1926), to prepare dissertations dealing with bryophytes. The remaining seven students pursued research in structural botany. Perhaps, though, there was an additional Ph.D. student trained by Evans that was to become his most renowned. An account has been handed down which reflects the combination of scholarly professionalism and jocularity which Evans displayed. It seems he felt that his M.D. degree was neither sufficient nor proper for a professor of botany, but that rather he should hold the Ph.D. The immediate problem was finding one at Yale who could qualify to serve as mentor to bestow such a degree; the answer, Evans himself. And so the story unfolds that Evans, the student, presented a dissertation to Evans, the preceptor. He rejected it! Somewhat later, a second dissertation was submitted and deemed scholarly and meritorious. He took his Ph.D. in 1899.

Professor Evans was to publish countless treatises on hepatics and/or mosses from 1891 until 1940. From that date forward, his writings concerned only the lichens. Numerous conjectures have been offered to explain his belated, but total immersion in lichenology. A few say he considered Nichols' 1938 publication (_Annales Bryologici_ 11: 1-5) to be his bryological obituary, and hence he turned exclusively to lichens. Some felt that the Frye and Clark North American hepatic flora project had pre-empted his plans, and so he turned to lichens simply as a compliant alternative. Professor Fulford relayed the following explanation. Dr. Evans always had a great interest in lichens and when Asahina's microchemical techniques were published in the 1930's, Evans was literally intriged to the point that he simply never found the time for further published accounts on bryophytes. Indeed, his interest in *Cladonia* s. lat. resulted in his amassing nearly 40,000 carefully prepared specimens (now curated at the Smithsonian Institution [US]). This complete bryologist was to become equally as famous a lichenologist as he was an internationally celebrated bryologist. Among his kudos, he was named Honorary President of the Section on Lichenology at the 8th International Botanical Congress, Paris in 1953, although unfortunately he was unable to make the trip. His work on lichens, however, was yet to continue, apparently on an almost daily basis until his death in 1959 at age 91.

Obviously, the title EVANSIA is truly an appropriate eponymy for an information bulletin to serve the bryological *and* lichenological community. Evans remains an inspiration in these disciplines, leaving an indelible mark on both.

The ninth annual A. Leroy Andrews Bryological Foray will be held in central Pennsylvania on 28-30 September, 1984. Headquarters and accommodations will be at the Sieg Conference Center of Lock Haven University in Lamar, Pennsylvania. For information and reservations contact: Dr. Ronald A. Pursell, Department of Biology, 202 Buckhout Laboratory, The Pennsylvania State University, University Park, PA 16802.

THE 1983 MIDWEST BRYOLOGICAL FORAY

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ABSTRACT. The third Midwest Bryological Foray was held in west central Indiana on 21-23 October 1983. Field work in Montgomery, Owen, Parke and Putnam counties resulted in the discovery of many county records and nine taxa not previously reported from Indiana: *Desmatodon plinthobius*, *Distichium capillaceum*, *Orthotrichum anomalum*, *Philonotis capillaris*, *Sphagnum capillifolium* var. *tenellum*, *S. fuscum*, *S. russowii*, *S. squarrosum* and *S. wulfianum*.

The third Midwest Bryological Foray was held in west central Indiana on 21-23 October 1983 (Glime, Bowers & Slavick, 1982; Maravalo, Bowers & Freckman, 1983). The meeting was based at the Indiana Baptist Assembly Camp in southern Putnam County on the northern shore of Cataract Lake, 40 km east of Terre Haute. Field trips were made to areas in Montgomery, Owen, Parke and Putnam counties. Co-organizers of the foray were Bill McKnight and Malcolm Sargent. The 43 participants came from Illinois, Indiana, Iowa, Michigan, Ohio and Wisconsin, with a large contingent from Eastern Illinois University led by Charles Arzeni. Weather during the foray was less than ideal as Hurricane Tico produced very heavy rainfall in the region, with some areas receiving over 30 cm. Fortunately, most of the showers occurred during the night. The moisture and clouds certainly affected the ability to find and field-identify some species but it did not limit the activities or enthusiasm of the group.

The foray commenced Friday afternoon with a few early arrivals visiting the rain-swollen, thundering Upper Cataract Falls at the SE corner of Cataract Lake. The vertical walls and boulders of limestone support a limited but lush growth of calciphiles. The list of taxa observed includes *Anomodon minor*, *Brachythecium salebrosum*, *Grimmia* sp., *Gymnostomum aeruginosum*, *G. recurvirostrum*, *Homomallium adnatum*, *Philonotis capillaris* (state record from edge of waterfall) and *Porella platyphylla*. Following dinner, Bill McKnight presented an illustrated talk on the geology, vegetation, field areas and bryophytes of west central Indiana, as well as a short historical account of Indiana bryology. Everyone was pleased that Winona Welch attended and participated in the evening session. Dr. Welch has devoted much of her life to working on the bryophytes of Indiana (Welch, 1957) and coordinated the three previous bryophyte forays held in Indiana (1958, 1961 and 1970). Her participation provided memories we will long cherish.

On Saturday morning the participants visited Fern Cliff, 9 km WSW of Greencastle. This area, which is famous as the only reported location of *Fissidens polypodioides* in Indiana (not relocated on this foray), features heavily shaded sandstone canyons and an abandoned quarry. The several canyons cut in the Mansfield sandstone contain a very rich bryoflora. A list of some interesting and regionally rare taxa collected includes *Bazzania trilobata*, *Bryhnia novae-angliae*, *Bryoxiphium norvegicum*, *Fontinalis dalecarlica*, *Hookeria acutifolia*, *Lepidozia reptans* and *Thamnobryum alleghaniense*. Bruce Allen collected *Aphanorrhegma serratum* and *Ephemerum spinulosum* in a corn field adjacent to the quarry.

Although Fern Cliff is one of the most thoroughly studied sites in Indiana, including a visit by the 1958 foray of the American Bryological and Lichenological Society (Miller & Thomson, 1959), numerous county and five state records were discovered (Sphagnum capillifolium var. tenellum, S. fuscum, S. russowii, S. squarrosum and S. wulfianum). Sphagnum capillifolium var. tenellum, S. fuscum and S. wulfianum are known in Indiana only from this site, while S. russowii and S. squarrosum are also known from two northern Indiana counties each (Andrus & Wilcox, New records for Sphagna in Indiana, ms. submitted). These record taxa all came from the particularly interesting flora in the bog-like environment of a 0.5 ha sandstone quarry which was abandoned near the turn of the century. There were no Sphagna reported from this site during the 1958 foray and the subsequent 1970 ABLS foray reported only one taxon, Sphagnum capillifolium, from an adjacent steep slope (Welch, 1970). In contrast, at least ten Sphagna were discovered on this site during an enthusiastic search led by Frank Bowers and Diana Horton. Found, in addition to the five taxa listed above, were: Sphagnum capillifolium s.l., S. centrale, S. fimbriatum, S. magellanicum and S. recurvum var. tenue. Growing in association with these Sphagna were Aulacomnium palustre (with capsules), a very large Dicranum scoparium with undulate leaves and Polytrichum commune. The presence of these taxa would seem to suggest long distance dispersal, as the nearest known populations for most of the Sphagna are at least 200 km NNW of Fern Cliff. One cannot help but wonder about the responsible dispersal mechanisms and why these taxa have only recently appeared here. A search failed to yield any of the hepatics associated with Sphagnum bogs. Furthermore, neither of the two other abandoned sandstone quarries surveyed by the senior author prior to the foray contained any of the above taxa.

The participants split into two groups after lunch with those wanting to collect going with Malcolm Sargent to Roaring Creek in Parke County, 4 km SW of Turkey Run. The second group proceeded with Bill McKnight for a non-collecting walk in Shades State Park, Montgomery County. These sites are north of the southern Wisconsinan glaciation boundary and their topography is the result of extensive erosion into the soft and shallow bedrock. Both locations possess virgin hardwood forests dominated by Acer saccharum, Fagus grandifolia and Quercus spp., and feature relict populations of Taxus canadensis and Tsuga canadensis. The steep scenic ravines at the Shades also contain many seep springs formed as a result of sandstone outcroppings overlying less permeable siltstone. Some of the unusual bryophytes encountered at the Shades include Anacamptodon splachnoides, Brothera leana, Brotherella tenuirostris, Cratoneuron filicinum, Ctenidium molluscum, Dicranum flagellare, D. montanum, Forsstroemia trichomitria, Frullania tamarisci subsp. asagrayana, Haplohymenium triste, Notothylas orbicularis, Odontoschisma sp., Timmia megapolitana var. megapolitana and Trichocolea tomentella. The group visiting the low sandstone outcroppings along Roaring Creek found Bryoxiphium norvegicum, Ctenidium molluscum, Dicranum viride, Hyophila involuta, Myurella sibirica, Preissia quadrata and Thuidium pygmaeum. Following dinner, John Bacone, Director of Indiana Nature Preserves, gave an excellent illustrated presentation of the natural areas of Indiana and the efforts being made to preserve them.

The location for the Sunday morning field trip was an abandoned limestone quarry at Romona, 4 km NE of Spencer, in Owen County. This quarry, which has had no active mining for at least 25 years, features large piles of culled boulders (grout) that have been overgrown. At first glance the area appeared to be uninteresting, but the air circulating through these piles is kept very moist and cool, resulting in a prime bryophyte habitat. The list of species collected here includes three state records (Desmatodon plinthobius--found by Bruce Allen, Distichium capillaceum and Orthotrichum anomalum), numerous county records, and the dominant large calciphiles common to this region, *Anomodon attenuatus*, *A. minor* and *A. rostratus*. Some other interesting taxa found were *Clasmatodon parvulus*, *Cololejeunea biddlecomiae*, *Forsstroemia trichomitria* (on boulder), *Mnium marginatum*, *Orthotrichum strangulatum*, *Platydictya confervoides*, *Rhodobryum roseum*, *Schwetschkeopsis fabronia*, *Thelia hirtella*, *Thuidium pygmaeum*, *Timmia megapolitana* var. *megapolitana* and the alga *Trebouxia*. Unfortunately, it seems that these piles are soon to be crushed and used for road fill.

Following lunch Bill McKnight took Janice Glime and her Michigan Tech students to the Winona Welch Botanical Area in the Hoosier Highlands located below the Cataract Lake Dam. Their efforts to relocate the *Brothera* reported during the 1958 foray were unsuccessful.

The nomenclature used follows Crum & Anderson (1981) and Stotler & Crandall-Stotler (1977). Vouchers are deposited at the Illinois Natural History Survey (ILLS) and/or in the collections of the various collectors. Duplicate vouchers for most of the state records and Sphagna have been sent to MICH. A more complete account of the foray, including a list of all participants, will be submitted for publication in a future issue of the Proceedings of the Indiana Academy of Sciences.

The authors would like to acknowledge the Department of Plant Biology at the University of Illinois for providing partial funding, microscopes and secretarial service. Thanks are also extended to Howard Crum and Richard Andrus for assisting with some of the identifications (especially the Sphagna), and to John Bacone and the many Hoosiers who provided assistance during the preparation for this meeting.

Crum, H. A. & L. E. Anderson. 1981. Mosses of Eastern North America. Two volumes. Columbia University Press, New York. 1328 pp.

Glime, J. M., J. D. Bowers & A. D. Slavick. 1982. The first annual Midwest Bryological Foray. Bryologist 85: 335, 336.

Maravolo, N. C., F. D. Bowers & S. Freckman. 1983. The second annual Midwest Bryological Foray. Bryologist 86: 278, 279.

Miller, H. A. & J. A. Thomson. 1959. The 1958 foray of the American Bryological Society. Bryologist 62: 67-73.

Stotler, R. & B. Crandall-Stotler. 1977. A checklist of the liverworts and hornworts of North America. Bryologist 80: 405-428.

Welch, W. H. 1957. Mosses of Indiana: an illustrated manual. The Bookwalter Co., Indianapolis. 478 pp.

_____. 1970. [Untitled.] De Pauw University, Greencastle, Indiana. 3 pp. [Unpublished directions and site descriptions for the 1970 American Bryological and Lichenological Society foray held in Indiana.]

STICTA, AN "EASY" GENUS BECOMES MORE DIFFICULT

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In the eastern United States *Sticta* is a genus easily recognized by the cyphellae on the lower side of the thallus. The species have likewise been no problem: *S. limbata* with soredia, *S. fuliginosa* with laminal isidia and *S. weigelii* with marginal isidia. In examining specimens referred to *S. weigelii* (described from Guadeloupe) in order to identify material from the Dominican Republic, it became clear that they may actually include as many as six species. Additionally, much of the North American material cannot be matched with any of the West Indian forms and represents a separate species. A review of the literature turned up only a single species described as new from eastern North America, *Sticta beauvoisii* Delise (Hist. Lich. Sticta 83, pl. 7, fig. 25. 1822.). This species is based on a collection made by Palisot de Beauvois in "l'Amérique septentrionale." According to Agnes Chase (in Niles, 1925), Palisot collected in North America from ca. 1791-1798 mainly around Philadelphia but also southward as far as eastern Tennessee. P. M. Jørgensen (1978) reports that most of the foliose genera, including *Sticta*, are missing from the Delise herbarium at Caen. Fortunately a fragment was sent to Tuckerman (FH-Tuck 1089) which agrees with eastern North American specimens and may serve as a lectotype if no more appropriate specimen is located elsewhere in France.

The situation in North America is complicated in that a second *Sticta* with marginal isidia occurs in the southern coastal plain. It is identical to the most common taxon of the *S. weigelii* group in the West Indies but until the Acharian type of *S. weigelii* can be examined I cannot be sure that the name applies to this taxon. However, I will use the name temporarily. The two species can most easily be separated by the nature of the hairs forming the tomentum on the lower side of the thallus (figs. 1, 2). Also, *S. beauvoisii* has scattered rhizines (similar to those in *Peltigera*) which are apparently absent in *S. weigelii*. *Sticta beauvoisii* generally seems browner, more regularly branching and more rosette-forming than *S. weigelii*, which tends to be bluish-gray and irregularly branched. Additionally the two species are geographically separated. *Sticta beauvoisii*, as far as I now know, ranges from southern Canada south to the mountainous areas of North Carolina and northern Georgia west to Arkansas, Texas and New Mexico. *Sticta weigelii* is a widespread neotropical species known in the United States from Florida and the coastal plain of Alabama and Louisiana. The only anomalous record of *S. weigelii*, where the two might occur together, is from Tennessee collected by W. W. Calkins, who, in my opinion, was not overly careful about labeling his specimens. The Tennessee collection may be verified and the precise distributions of the two species in the Southeast better defined by future collecting. It is by collecting "problem species" in critical areas that amateur botanists can make valuable contributions.

In summary, the majority of marginally isidiate Stictas in eastern North America should be called *Sticta beauvoisii* Delise and only the southernmost, subtropical collections retained in *Sticta weigelii* auct. until this species complex is further resolved.

Jørgensen, P. M. 1978. The lichen family Pannariaceae in Europe. Opera Botanica 45: 1-123.

Niles, C. D. 1925. A bibliographic study of Beauvois' Agrostographie. Contributions from the United States National Herbarium 24: 135-214.

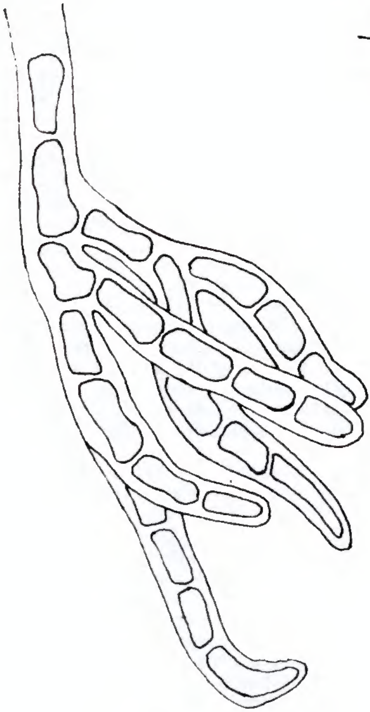

Figure 1

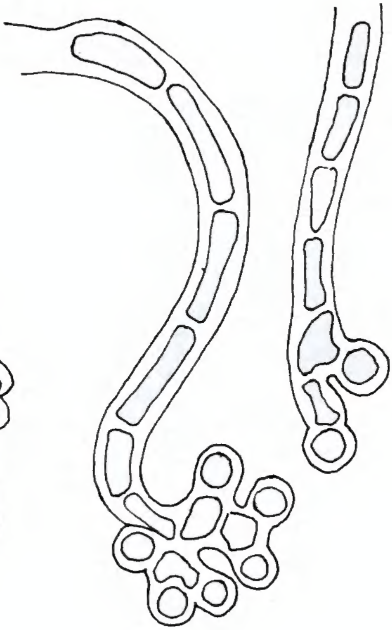

Figure 2

Figures 1 and 2. Tomentum hairs in Sticta. Figure 1: S. beauvoisii; Figure 2: S. weigelii.

ON PSEUDOPARAPHYLLIA

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In recent years the use of pseudoparaphyllia for taxonomic purposes in mosses has greatly increased. However, most bryologists either have ignored them or considered them too difficult to find to make it worth their time. Pseudoparaphyllia, though, can be of use and are, with minimal effort, easily seen with the aid of a compound microscope.

Apparently the use of the term "pseudoparaphyllia" was first used by Warnstorf at the turn of the century but for many years thereafter pseudoparaphyllia and paraphyllia were confused. In 1963 Iwatsuki brought pseudoparaphyllia back to the attention of the bryological community. However, it was Ireland (1971) who thoroughly discussed pseudoparaphyllia and illustrated them for numerous taxa and made them harder to ignore for the average bryological systematist.

In this paper I wish to present a personal view of pseudoparaphyllia. For over five years now I have been looking at the structures and have developed views which are not widely held. Therefore, I would like to define and discuss the structure of pseudoparaphyllia, speculate on their origins and functions and to explain how they are best seen.

Pseudoparaphyllia and paraphyllia should not be confused although both are confined to pleurocarpous mosses. Paraphyllia are rarely simple, but mostly branched, structures which, to varying degrees, coat the stems and branches of some mosses. In certain species, such as Climacium dendroides and Hylocomium splendens, paraphyllia are conspicuous even with a hand-lens if one scraps the stems or branches with a fingernail to remove some of the leaves. A function is at best speculative but perhaps at least in species with a dense coating of paraphyllia, they may aid in water conduction or retention. Then again, since paraphyllia are green, they may be photosynthetic supplementary structures.

Pseudoparaphyllia, on the other hand, are not readily seen, and certainly not with a hand-lens. An individual pseudoparaphyllium may resemble a paraphyllium, but that is the end to the similarity. They certainly have a different function and are spatially arranged very differently. Pseudoparaphyllia are found only around branch primordia (and, therefore, sometimes, at the bases of mature branches). They are small leaf-like structures which often arch over branch primordia (=buds) and after branch elongation form a concentric ring around the base of the branch. However, in some taxa, pseudoparaphyllia appear to be deciduous and fall off once the branch matures. All pseudoparaphyllia, like most moss leaves, are only one cell thick.

Pseudoparaphyllia have been classified into two groups for convenience, but the groups merge and are only the two extremes of a continuum (cf. figs. 1, 2). Pseudoparaphyllia described as "filamentous" have their cells arranged in a single row, i.e., uniseriate. They may be only a few cells long or as many as 12-15 cells long (fig. 1). Often the basal portion of filamentous pseudoparaphyllia are two cells wide in one or two tiers. Foliose pseudoparaphyllia (fig. 2) are broader than filamentous pseudoparaphyllia and have their cells arranged in many tiers. Most foliose pseudoparaphyllia are more or less triangular in outline with a broad base tapering to a point, although some are truncate or even deeply lobed.

Repeatedly in the literature the absence of pseudoparaphyllia has been used as a taxonomic character and, indeed, some taxa appear not to have pseudoparaphyllia. However, it seems as if there is a difference in branch origin and development which results in the lack of pseudoparaphyllia rather than just the absence of them from typical branch primordia which are standardly associated with them. When a pleurocarp lacks pseudoparaphyllia it often has greatly reduced branching. Many of these plants live in well-shaded habitats and possibly the plants have found it advantageous to suppress branching and to put their energy into one-dimensional, forward growth. For whatever the reason, these plants often do not branch unless the stem apex is damaged. Then, branch primordia develop from superficially-appearing undifferentiated stem tissue in the axils of leaves. These branch primordia lack pseudoparaphyllia. I have never observed branch primordia between leaf insertions (rather than in leaf axils) without pseudoparaphyllia. There is some difference of opinion, though, in the interpretation of branch primordia and their associated structures. Some workers have called broad, leaf-like structures, which surround and closely overarch branch primordia, primary leaves. However, when these structures are stem-borne I consider them nothing more than well-developed foliose pseudoparaphyllia. Bruce Allen recently told me that one could decide this issue by sectioning through the branch primordia and see where the "pseudoparaphyllia" originate since the cells of the primordium are distinctly different from those of the stem. However, my manual dexterity often fails in simple leaf cross-sections so I am reluctant to try to section structures marginally visible with a dissecting microscope.

Although the opposite view has been expressed, I consider the broad, overarching pseudoparaphyllia to be the most primitive. I consider pseudoparaphyllia the bryological analogue of bud scales in flowering plants. By this I mean that I think that pseudoparaphyllia, at least in the primitive condition, protect dormant branch primordia from physical injury. Although this can only remain speculative, there is some correlative evidence, which Ireland (1971) presents, that foliose pseudoparaphyllia (which more adequately cover the branch primordia) are more common in North Temperate areas (where the climate is harsher) and filamentous pseudoparaphyllia are more widespread in tropical climates. It seems logical that if pseudoparaphyllia were to evolve it would be in response to a need. Therefore, I consider the most functional ones, i.e., foliose pseudoparaphyllia, the most primitive and those which are more reduced (the most common direction of evolution in mosses) derived.

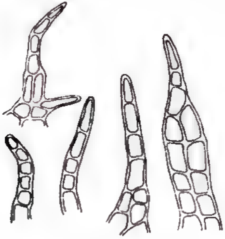

Figure 1:
Filamentous pseudoparaphyllia

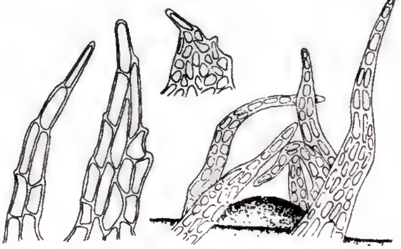

Figure 2:
Foliose pseudoparaphyllia

[Figures from Ireland, 1971]

Pseudoparaphyllia probably arose from leaves of some sort rather than de novo. Certainly if natural selection can take the leaves of higher plants and transform them into bud scales and flowers, the leaves of bryophytes, which have had a longer geologic time frame in which to evolve, can have become pseudoparaphyllia. At present, I see no compelling evidence to think that pseudoparaphyllia and paraphyllia are necessarily related to one another.

Even if one understands the structure and function of pseudoparaphyllia, though, with not having actually seen them, they remain something of a mystery. Once found, however, they become quite obvious. The best way to observe them is to take an apical portion of a branching stem; one centimeter is usually ample. Under a dissecting microscope the stem leaves should be removed one by one with a pair of forceps. Young branches should be left attached to the stem but the leaves on all sides of the stem are best removed. This procedure should yield an essentially naked stem. At this point branch primordia should appear as small bumps along the stem, under the dissecting microscope. The stems should then be put on a microscope slide with water and a cover slip and observed under a compound microscope. Assuming the pseudoparaphyllia are not caducous, they can often be seen at the bases of the young branches left on the stem as well as surrounding the branch primordia.

Ireland, R. R. 1971. Moss pseudoparaphyllia. Bryologist 74: 312-330.
Iwatsuki, Z. 1963. Bryological miscellanies XII-XIII. Jour. Hattori Bot. Lab. 26: 63-74.

Anna M. Reid is preparing a biography of Edward Tuckerman (1817-1886). If anyone has information on the location of letters or manuscripts written by Tuckerman, please contact her at: Farlow Herbarium, Harvard University, 20 Divinity Avenue, Cambridge, MA 02138.

RECENT PUBLICATIONS OF INTEREST

Crum, Howard. 1984. Sphagnopsida. Sphagnaceae. North American Flora, Series II, Part 11, pages 1-180. Paperback. Price (includes postage and handling): $26.75 (U.S.); $27.75 (non-U.S.). Available from: Scientific Publications Department, The New York Botanical Garden, Bronx, NY 10458 U.S.A.

This treatment of Sphagnum for North America north of Mexico includes complete descriptions and discussions for each species and handsome line drawings for each of the taxa.

Reese, William Dean. 1984. Mosses of the Gulf South from the Rio Grande to the Apalachicola. Pages i-xvi, 1-252. Hardback. Price: $30.00. Available from: Louisiana State University Press, Baton Rouge, LA 70893.

This new flora contains keys, descriptions and illustrations to the mosses of the Gulf coast of the United States. Also included are an introduction and glossary.

Santesson, Rolf. 1984. The lichens of Sweden and Norway. Pages 1-333. Paperback. Available from: Swedish Museum of Natural History, P.O. Box 50007, S-10405 Stockholm, Sweden. Price unknown.

Although treating the lichens of Sweden and Norway, the flora is very similar to that of boreal North America. Several new combinations are made.

Spruce, Richard. 1984. Hepaticae of the Amazon and the Andes of Peru and Ecuador. With an Introduction and Index with updated nomenclature by Barbara M. Thiers. Contributions from the New York Botanical Garden Volume 15. Pages I-XII, i-xi, 1-589, (1)-(14). Plates I-XXII. Paperback. Price (including postage and handling): $42.15 (U.S.); $43.35 (non-U.S.).

This is a reprint of Spruce's classic work first printed in Volume 15 of the Transactions and Proceedings of the Botanical Society of Ediburgh in 1884-1885. It still remains the best comprehensive work on South American Hepaticae.

Sayre, Geneva. 1984. Index to the moss herbarium of William Starling Sullivant (1803-1873). Pages i-iii, 1-117. Unbound mimeograph. Price: $5.50. Available from: Farlow Herbarium and Library, Harvard University, 20 Divinity Avenue, Cambridge, MA 02138.

This index is like the previous ones for the separately kept herbaria within the Farlow. It provides the names of all the specimens from Sullivant's moss herbarium.

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